

INEC 2018

www.inec2018.org
Program Booklet

8th IEEE INTERNATIONAL NANO-ELECTRONICS CONFERENCE

Kuala Lumpur, Malaysia, January 3-5, 2018

ORGANIZED BY



IEEE
Singapore Section
NANOTECH CHAPTER

TECHNICALLY SPONSORED BY



CONTENTS

3	Welcome Message
4	Conference History
4	Organizing Committee
6	Conference Venue
7	Venue Layout
	Technical Program
8	Session Timetable
11	Keynote Speakers
	Presentation Schedule
12	IoT
13	Carbon Materials/Low Dimensional Materials-1
14	MEMS/NEMS-1
15	Nanomaterials
16	MEMS/NEMS-2
16	Carbon Materials/Low Dimensional Materials-2
18	Optoelectronics/Nanophotonics
19	Energy Harvesting/Battery
20	Nano/Microfabrication
21	Carbon Materials/Low Dimensional Materials-3
22	Sensors/Actuators-1
23	Electronic Skin
24	Sensors/Actuators-2
25	MEMS/NEMS-3
27	Poster Schedule

Welcome Message

Dear Friends and Colleagues,

It is my great pleasure to welcome you on behalf of the organizing committee to the 8th IEEE International Nanoelectronics Conference (INEC) 2018. IEEE-INEC 2018 is the 8th in a series of very successful conferences initiated by Nanotech Chapter of IEEE Singapore Section. It provides an international forum for the presentation and discussion of recent advances in the areas of Nanoelectronics, Nanodevices, Nanosystems and IoT. After its great success in Chengdu, China in 2016, INEC 2018 will be held in Kuala Lumpur, Malaysia, one of the fastest growing metropolitan cities in South East Asia, on January 3-5, 2018. The INEC 2018 has a three-day technical program including oral and poster sessions as well as invited and keynote speeches. The conference is sponsored by the IEEE Electron Devices Society, IEEE Singapore. The INEC 2018 organizing committees sincerely invite your participation and attendance. The selected papers from the conference could be published in one of the journals – International Journal of Nanotechnology and IEEE Access.

I welcome you all to Kuala Lumpur, Malaysia to have a memorable experience at the INEC 2018 Conference. Kuala Lumpur is a city that is truly one-of-a-kind. You'll find the world in this city but you'll never find anything quite like it anywhere else in the world.

It is my humble wish that your visit is wholesome experience. I am certain that you will experience the hospitality and ancient culture that the city is famous for. Thank you for choosing to attend the conference. We hope to see you back again in the forthcoming years.

Sincerely,



Jianmin Miao
Nanyang Technological University, Singapore

Conference History

The 8 th INEC	January 3-5, 2018	Kuala Lumpur, Malaysia
The 7 th INEC	May 9-11, 2016	Chengdu, China
The 6 th INEC	July 28-31, 2014	Sapporo, Japan
The 5 th INEC	January 2-4, 2013	Singapore, Singapore
The 4 th INEC	June 21-24, 2011	Tao-Yuan, Taiwan
The 3 rd INEC	January 3-8, 2010	Hong Kong, China
The 2 nd INEC	March 24-27, 2008	Shanghai, China
The 1 st INEC	January 10-13, 2006	Singapore, Singapore

Organizing Committee

Conference Chairman

Jianmin Miao
Nanyang Technological University, Singapore

Technical Chair

Daniel Chua
National University of Singapore, Singapore

Founding Chair

Cher Ming Tan
Chang Gung University, Taiwan

Co-Chair

Norhayati Binti Soin
University of Malaya, Malaysia

Local Arrangement Chair

Sharifah Fatmadiana Wan Muhamad Hatta
University of Malaya, Malaysia

Financial Chair

K Radhakrishnan
Nanyang Technological University, Singapore

Publication Chair

Eng Soon Tok
National University of Singapore, Singapore

Publicity Chair

Wei Li
Agency for Science, Technology and Research, Singapore

Program Committee

Honglong Chang
Northwestern Polytechnical University, China

Nan Wang
Singapore-MIT Alliance for Research and Technology Centre,
Singapore

Kai Tao
Northwestern Polytechnical University, China

Pradeep Dixit
Indian Institute of Technology Bombay, India

Xin Xia
Nanyang Technological University, Singapore

Chao Wang
Singapore University of Technology and Design, Singapore

Jin Wu
Sun Yat-sen University, China

Ciprian Iliescu
National University of Singapore, Singapore

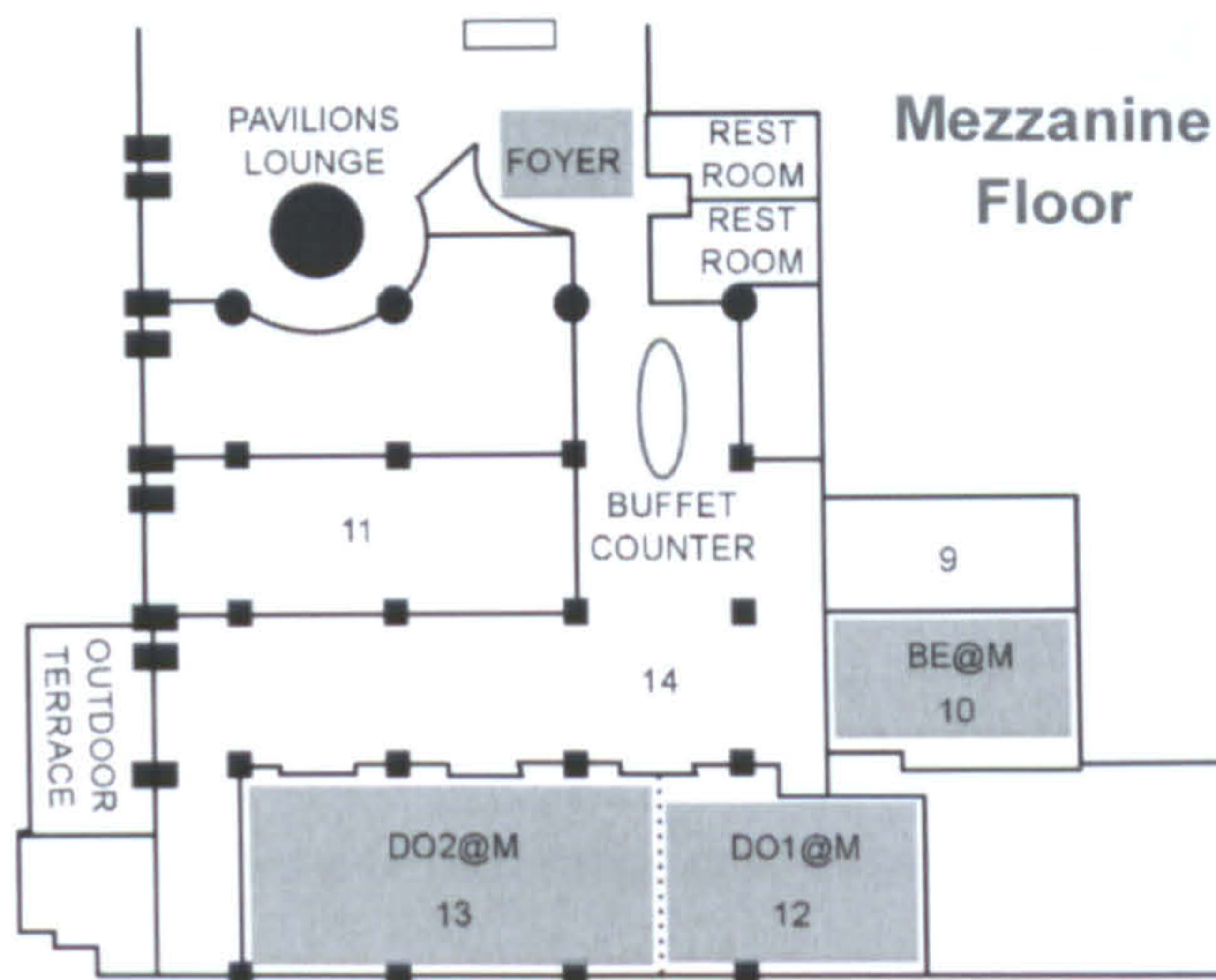
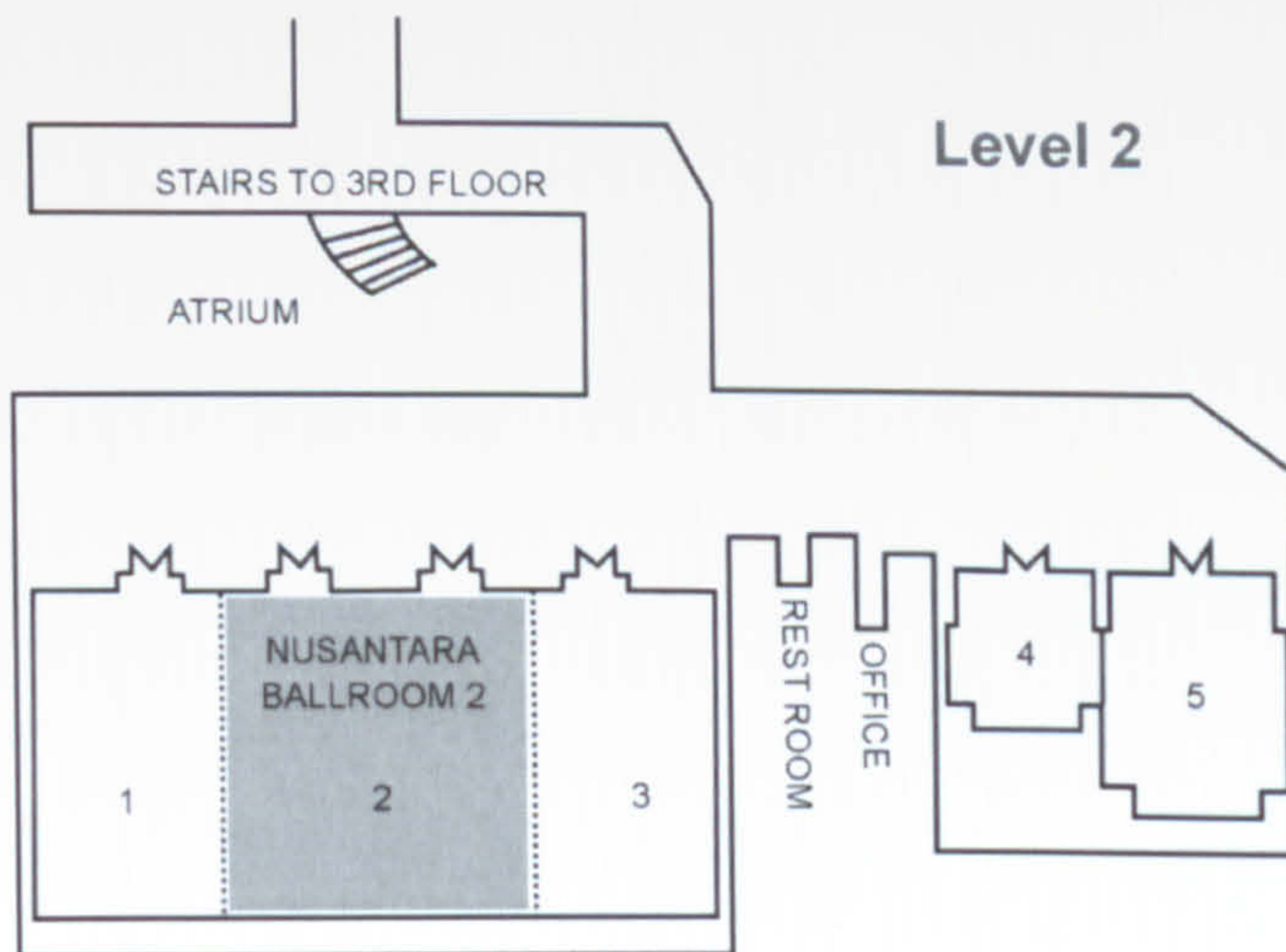
Conference Venue

Sheraton Imperial Kuala Lumpur Hotel
(<http://www.sheratonimperialkualalumpur.com/>)

Please refer to the following link for more information on maps, directions, and transportation options to reach the hotel.
(<http://www.sheratonimperialkualalumpur.com/map-directions>)

Hotel Location:

Venue Layout



Note: The meeting room DO@M is the combined space of meeting rooms DO1@M and DO2@M. All posters are placed at the FOYER@M.

Technical Program

Session Timetable

3rd January 2018 (Wednesday)

Nusantara Ballroom 2, Level 2

8.45 - 9.00	Opening Speech	
9.00 - 9.45	Keynote Speech	
9.45 - 10.30	Keynote Speech	
10.30 - 11.00	Morning Tea Break	
	Meeting Room DO1@M, Mezzanine Floor	Meeting Room DO2@M, Mezzanine Floor
11.00 - 12.35	IoT (WA1-1 to WA1-4)	Carbon Materials/ Low Dimensional Materials-1 (WA2-1 to WA2-4)
12.40 - 14.00	Lunch and Poster Session	
14.00 - 15.30	MEMS/NEMS-1 (WP1-1 to WP1-4)	Nanomaterials (WP2-1 to WP2-4)
15.30 - 16.00	Poster Session and Afternoon Tea Break	
16.00 - 17.35	MEMS/NEMS-2 (WP1-5 to WP1-8)	Carbon Materials/ Low Dimensional Materials-2 (WP2-5 to WP2-7)

4th January 2018 (Thursday)**Meeting Room DO@M, Mezzanine floor**

9.00 - 9.45

Keynote Speaker

9.45 - 10.30

Morning Tea Break

**Meeting Room
DO1@M,
Mezzanine Floor****Meeting Room
DO2@M,
Mezzanine Floor**

10.30 - 12.40

**Optoelectronics/
Nanophotonics**
(TA1-1 to TA1-5)**Energy Harvesting/
Battery**
(TA2-1 to TA2-6)

12.45 - 14.00

Lunch

14.00 - 15.35

**Nano/
Microfabrication**
(TP1-1 to TP1-4)**Carbon Materials/
Low Dimensional
Materials**
(TP2-1 to TP2-2)

15.40 - 16.00

Poster Session and Afternoon Tea Break

16.00 - 17.55

Sensors/Actuators-1
(TP1-5 to TP1-8)**Electronic Skin**
(TP2-3 to TP2-5)

18.00 - 20.30

Banquet, Poolside, Level 5

5th January 2018 (Friday)

**Meeting Room
DO1@M,
Mezzanine Floor**

**Meeting Room
BE@M,
Mezzanine Floor**

9.00 - 10.45

**Sensors/Actuators-2
(FA1-1 to FA1-5)**

**MEMS/NEMS-3
(FA2-1 to FA2-3)**

10.50 - 11.30

Morning Tea Break and Social Session

13.00 - 17.00

Social Event

Keynote Speakers



Dr. M. Meyyapan, National Aeronautics and Space Administration, USA

- 9.00 - 9.45, 3rd January (Wednesday)
- Nusantara Ballroom 2, Level 2



Professor L. Vayssieres, Xi'an Jiaotong University, China

- 9.45 - 10.30, 3rd January (Wednesday)
- Nusantara Ballroom 2, Level 2



Professor G. Barbastathis, Massachusetts Institute of Technology, USA

- 9.00 - 9.45, 4th January (Thursday)
- Meeting Room DO@M, Mezzanine floor

Presentation Schedule

3rd January 2018 (Wednesday)

Nusantara Ballroom 2, Level 2

8.45 - 9.00	Opening Speech
9.00 - 9.45	Keynote Speech Dr. M. Meyyapan, National Aeronautics and Space Administration, USA
9.45 - 10.30	Keynote Speech Professor L. Vayssieres, Xi'an Jiaotong University, China
10.30 - 11.00	Morning Tea Break

Meeting Room DO1@M, Mezzanine Floor **Theme: IoT**

Session Chair	Jianmin Miao
WA1-1 11.00 - 11.25 Invited	IoT and Nanoelectronics (from Reliability Perspective) Cher Ming Tan Chang Gung University, Taiwan
WA1-2 11.25 - 11.50 Invited	Vertical Nanowire Tunneling Field-Effect Transistors Adopting Core-Shell Structure with Strain Effects (Paper ID 53) Jun-Sik Yoon, Chang-Ki Baek Pohang University of Science and Technology, Korea
WA1-3 11.50 - 12.10	A Method to Delayer Thin and Dense Polysilicon for SOI Wafer (Paper ID 31) Handie Ahmataku, Rajsekar Sethu X-Fab Sarawak Sdn. Bhd, Malaysia

WA1-4
12.10 - 12.30
Development of Portable Malodor Monitoring System Based on Electronic Nose Technology (Paper ID 32)
 Theerapat Pobkrut, Satetha Siyang, Treenet Thepudom, Teerakiat Kerdcharoen
 Mahidol University, Thailand

12.40 – 14.00 **Lunch and Poster Session**

Meeting Room DO2@M, Mezzanine Floor
Theme: Carbon Materials/
Low Dimensional Materials-1

Session Chair **Daniel Chua**

WA2-1
11.00 - 11.25
Invited
Thermal Characterization of Polycrystalline Diamond and Carbon Nanotubes Using Infrared Thermal Imaging Measurement (Paper ID 28)
 Beng Kang Tay¹, Qinyu Kong¹, Laurence Bodelot², Berengere Lebental², Devi Shanker Misra³
¹Nanyang Technological University, Singapore,
²Ecloe Polytechnique, France, ³Ila Technologies Pte Ltd, Singapore

WA2-2
11.25 - 11.50
Invited
Graphene and Surface Functionization for the Applications on IC Devices (Paper ID 73)
 Chao-Sung Lai
 Chang Gung University, Taiwan

WA2-3
11.50 - 12.15
Invited
Potassium Doped Bilayer Graphene (Paper ID 38)
 Takatoshi Yamada, Yuki Okigawa, Masataka Hasegawa
 National Institute of Advanced Industrial Science and Technology, Japan

WA2-4
12.15 - 12.40
Invited

Influence of H₂O Adsorption on Sensing Properties of Graphene Doped with Cr and Mn (Paper ID 36)

Sundaram Swaminathan¹, Seba Sara Varghese², K K Singh³
¹DIT University, India, ²The Petroleum Institute, United Arab Emirates, ³Bits Pilani Dubai Campus, Abu Dhabi, United Arab Emirates

12.40 – 14.00 **Lunch and Poster Session**

Meeting Room DO1@M, Mezzanine Floor
Theme: MEMS/NEMS-1

Session Chair **Pradeep Dixit**

WP1-1
14.00 - 14.25
Invited

A High Sensitive Charge Sensing Scheme Based Weakly Coupled Resonators (Paper ID 75)

Honglong Chang
Northwestern Polytechnical University, China

WP1-2
14.25 - 14.50
Invited

A 2DOF MEMS Vibrational Energy Harvester (Paper ID 16)

Kai Tao¹, Lihua Tang², Jin Wu³, Jianmin Miao⁴
¹Northwestern Polytechnical University, China, ²University of Auckland, New Zealand, ³Sun Yat-sen University, China, ⁴Nanyang Technological University, Singapore

WP1-3
14.50 - 15.10

HCI and NBTI Reliability Simulation for 45nm CMOS Using Eldo (Paper ID 44)

Anuar Jaafar, Norhayati Soin, Sharifah Fatmadiana Wan Muhammad Hatta
Universiti Teknikal Malaysia Melaka, Malaysia

WP1-4
15.10 - 15.30

A Compensation Method for Long-Term Zero Bias Drift of MEMS Gyroscope Based on Improved CEEMD and ELM (Paper ID 43)

Haoyu Gu, Xianxue Liu, Baolin Zhao, Hao Zhou
China Academy of Engineering Physics, China

15.30 – 16.00 Poster Session and Afternoon Tea Break

**Meeting Room DO2@M, Mezzanine Floor
Theme: Nanomaterials**

Session Chair	Jin Wu
WP2-1 14.00 - 14.25 Invited	Evolution of the Physics and Stochastics of Failure in Ultra-Thin Dielectrics - From SiO₂ to Advanced High-K Gate Stacks (Paper ID 74) Nagarajan Raghavan Singapore University of Technology and Design, Singapore
WP2-2 14.25 - 14.50 Invited	Strategies in Microfluidic Self-Assembling of Nanoparticles (Paper ID 62) Ciprian Iliescu National University of Singapore, Singapore
WP2-3 14.50 - 15.10	Electrical Analysis of InGaAs-Based Planar and Tri-Gate nMOSFET with S/D Resistance Dependencies at Different Drain Biases (Paper ID 56) Nurul Aida Farhana Othman, Sharifah Fatmadiana Wan Muhamad Hatta, Norhayati Soin University of Malaya, Malaysia
WP2-4 15.10 - 15.30	Photocatalytic, Antibacterial and Durability Properties of Synthetic Rutile Derived from Leucoxene Mineral Coated on Ceramic Roof Tile (Paper ID 10) Thanaphon Kansaard ¹ , Weerachon Phoochinkong ¹ , Wanichaya Mekprasart ¹ , Samunya Sanguanpak ² , Anucha Wannakon ² , Wisanu Pecharapa ¹ ¹ King Mongkut's Institute of Technology Ladkrabang, Thailand, ² National Science and Technology Development Agency, Thailand

15.30 – 16.00 Poster Session and Afternoon Tea Break

**Meeting Room DO1@M, Mezzanine Floor
Theme: MEMS/NEMS-2**

Session Chair Nan Wang

WP1-5
16.00 - 16.25
Invited
Fluxless Flip Chip Interconnects for MEMS in Heterogeneous Integration (Paper ID 72)
Teck Kheng Lee
Institute of Technical Education, Singapore

WP1-6
16.25 - 16.50
Invited
An Enhanced High-Sensitivity Micro Resonant Thermometer with Axial Strain Amplification Effect (Paper ID 23)
Qiang Shen, Jin Yang
Northwestern Polytechnical University, China

WP1-7
16.50 - 17.15
Invited
Electromechanical Piezoresistive Sensing of Graphene-Based Intracranial Pressure Sensor (Paper ID 57)
Norliana Yusof, Norhayati Soin
University of Malaya, Malaysia

WP1-8
17.15 - 17.35
Piezoresistive Effect of Interdigitated Electrode Spacing Graphene-Based MEMS Intracranial Pressure Sensor (Paper ID 55)
Siti Hajar Abd Rahman
University of Malaya, Malaysia

**Meeting Room DO2@M, Mezzanine Floor
Theme: Carbon Materials/
Low Dimensional Materials-2**

Session Chair Honglong Chang

WP2-5
16.00 - 16.25
Ion Beam Analysis at the Centre for Ion Beam Applications (CIBA), Singapore (Paper

Invited

ID 61)

Thomas Osipowicz

National University of Singapore, Singapore

WP2-6

16.25 - 16.50

Invited

Composite Damage Monitoring with Core and Skin Nanosensors Made of Carbon Nanotubes and Graphene Polymer Nanocomposites (Paper ID 48)

Jean-Francois Feller, Micka Castro

Bretagne Loire University, France

WP2-7

16.50 - 17.15

Invited

Hydroquinone Functionalized 3D Reduced Graphene Oxide Hydrogel for Enhanced NH₃ Sensing (Paper ID 2)

Jin Wu¹, Kai Tao², Nan Wang³, Jianmin Miao⁴


¹Sun Yat-sen University, China, ²Northwestern Polytechnical University, China, ³Singapore-MIT Alliance for Research and Technology Centre, Singapore, ⁴Nanyang Technological University, Singapore

4th January 2018 (Thursday)

Meeting Room DO@M, Mezzanine floor



- 9.00 - 9.45** **Keynote Speech**
Professor G. Barbastathis, Massachusetts
Institute of Technology, USA
- 9.45 - 10.30** **Morning Tea Break**

Meeting Room DO1@M, Mezzanine Floor
Theme: Optoelectronics/Nanophotonics

Session Chair	Cher Ming Tan and Ciprian Illiescu
TA1-1 10.55 - 11.20 Invited	Diversity Technique in Computational Integral Field Spectroscopy (Paper ID 19) Maciej Baranski ¹ , Sanathanan Muttikulangara Swaminathan ¹ , Shakil Rehman ² , George Barbastathis ³ , Jianmin Miao ¹ ¹ Nanyang Technological University, Singapore, ² Singapore-MIT Alliance for Research and Technology, Singapore, ³ Massachusetts Institute of Technology, United States
TA1-2 11.20 - 11.40	Design and Modeling of a SET Based Reconfigurable Flip Flop (Paper ID 14) Keerthana S, Rathnakannan K Anna University, India
TA1-3  11.40 - 12.00	Wafer-Scale Fabrication of Transparent Conductive N-Doped Reduced Graphene Oxide Film for Photodetector Application (Paper ID 58) Muhammad Aniq Shazni Mohammad Haniff, Mohd Ismahadi Syono MIMOS Berhad, Malaysia
TA1-4	Hybrid AC Powder Electroluminescent

12.00 - 12.20	Devices Fabricated by Bar Coating and Screen Printing (Paper ID 39) Shuai Zhang ¹ , Ronnie Teo ² , Terence Wong ¹ ¹ Nanyang Technological University, Singapore, ² SIMTech, Singapore
TA1-5 12.20 - 12.40	Photo-Modification and Photo-Oxidation Effect on CdSe Quantum Dot Down Converted LED's Lifetime (Paper ID 24) Preetpal Singh ¹ , Cher Ming Tan ¹ , Hao-Chung Kuo ² ¹ Chang Gung University, Taiwan, ² National Chiao Tung University, Taiwan
12.45 - 14.00	Lunch

Meeting Room DO2@M, Mezzanine Floor
Theme: Energy Harvesting/Battery

Session Chair	Wang Chao, Kai Tao
 TA2-1 10.30 - 10.55 Invited	Multifunctional Materials for Emerging Solar Technologies (Paper ID 76) Federico Rosei Institut National de la Recherche Scientifique, Canada
 TA2-2 10.55 - 11.20 Invited	Carbon-Based Composite Materials for Supercapacitors and Fuel Cells (Paper ID 59) Daniel Chua National University of Singapore, Singapore
TA2-3 11.20 - 11.45 Invited	Multi-Layer Noncontact Disk-Shaped Electrostatic Microgenerator (Paper ID 15) Binqiao Wang ¹ , Yixin Chen ¹ , Lihua Tang ² , Kai Tao ¹ ¹ Northwestern Polytechnical University, China, ² University of Auckland, New Zealand
TA2-4 11.45 - 12.05	Modeling of the Effect of Carrier Distribution in n+MOS₂/WSe₂/p+Si Heterostructure Solar Cell (Paper ID 17)

Parasuraman R, Rathnakannan K
Anna University, India

- TA2-5**
12.05 - 12.25
Straightforward Route for the Fabrication of Ultrathin Cu-Poor Zn-Rich Cu₂ZnSnS₄ Thin Film Solar Cells Using RF Sputtering of Non-Stoichiometric CZTS Target (Paper ID 40)
Siarhei Zhuk¹, Terence Kin Shun Wong¹, Asim Guchhait², Goutam Kumar Dalapati³
¹NOVITAS, Nanyang Technological University, Singapore, ²Energy Research Institute, Nanyang Technological University, Singapore, ³Institute of Materials Research and Engineering, A*STAR, Singapore
- TA2-6**
12.25 - 12.45
The Applications of Earth-Abundant and High-Performance of Metal Phosphide for Water Splitting (Paper ID 52)
Shu Hearn Yu
National University of Singapore, Singapore
- 12.45 - 14.00** **Lunch**

Meeting Room DO1@M, Mezzanine Floor
Theme: Nano/Microfabrication

Session Chair	Ciprian Iliescu
TP1-1 14.00 - 14.25 Invited	Plasmon-Mediated Self-Assembly of Gold Nanorods via Optomechanical Reaction (Paper ID 50) Jiunn-Woei Liaw Chang Gung University, Taiwan
TP1-2 14.00 - 14.25 Invited	Performance Improvement in Ge pMOSFET by Engineering Interfacial Layer and Microwave Annealing (Paper ID 21) Kuei-Shu Chang-Liao National Tsing Hua University, Taiwan


TP1-3
14.50 - 15.15
Invited
Glass Micromachining Using
Electrochemical Discharge for RF MEMS
Packaging (Paper ID 63)
 Julfekar Arab, Pradeep Dixit
 Indian Institute of Technology Bombay, India

TP1-4
15.15 - 15.35
Manipulating Sn Distribution in Strained
Ge_{1-x}Sn_x (001) Films via Surface
Passivation (Paper ID 70)
 Sheau Wei Ong
 National University of Singapore, Singapore

15.40 - 16.00 **Poster Session and Afternoon Tea Break**

Meeting Room DO2@M, Mezzanine Floor
Theme: Carbon Materials/
Low Dimensional Materials-3

Session Chair **K Radhakrishnan**

 **TP2-1**
14.00 - 14.25
Invited
Concept, Methodologies and Tools for
Carbon for Sensing Devices. Future Trends.
(Paper ID 34)
 Mauro Giorcelli
 Politecnico di Torino, Italy

TP2-2
14.25 - 14.45
Tuning Endotaxial Growth of CoSi₂
Nanowires and Nanodots (Paper ID 71)
 Edwin Bin Leong Ong
 National University of Singapore, Singapore

15.40 - 16.00 **Poster Session and Afternoon Tea Break**

Meeting Room DO1@M, Mezzanine Floor
Theme: Sensors/Actuators-1

Session Chair **Pradeep Dixit**

TP1-5 16.00 - 16.25 Invited	Non-Silicon Micro/Nano 3D Integrated Manufacturing Technology for Near-Zero-Power and Flexible MEMS Devices Applications (Paper ID 11) Zhuoqing Yang ¹ , Jianhao Shi ¹ , Bin Sun ² , Congchun Zhang ¹ , Guifu Ding ¹ , Xiaolin Zhao ¹ ¹ Shanghai Jiao Tong University, China ² Chinese Academy of Science, China
TP1-6 16.25 - 16.45	Drag Reduction of the Underwater Vehicles Using High Frequency and Micro-Amplitude Vibration of Deforming Walls (Paper ID 3) Xingxu Zhang, Xiaobiao Shan, Lingnan Zhu, Tao Xie Harbin Institute of Technology, China
TP1-7 16.45 - 17.10 Invited	PEDOT:PSS Piezoresistive Pressure Sensors with Nitrogen Plasma Surface Modification (Paper ID 66) Jer-Chyi Wang, Rajat Subhra Karmakar Chang Gung University, Taiwan
TP1-8 17.10 - 17.30	An Improved SOI Resonant Pressure Sensor Using Atmospheric Packaging (Paper ID 33) Jianbing Xie, Sen Ren Northwestern Polytechnical University, China
18.00 - 20.30	Banquet, Poolside, Level 5

Meeting Room DO2@M, Mezzanine Floor
Theme: Electronic Skin

Session Chair	Wang Chao, Nan Wang
TP2-3 16.00 - 16.25 Invited	Softer, Thinner and More Compliant Implants (Paper ID 69) Klas Hjort Uppsala University, Sweden

TP2-4
16.25 - 16.50
Invited

**Flexible Pressure and Force Sensing System
for Wearable Medical Devices (Paper ID 47)**

Ning Xue¹, Chunxiu Liu¹, Jianhai Sun¹, Chao
Wang²

¹Institute of Electronics, China, ²Singapore
University of Design and Technology,
Singapore

0

TP2-5
16.50 - 17.15
Invited

**Preparation of Multi-Walled Carbon
Nanotubes/Polydimethylsiloxane Composite
for Electronic Skin Application (Paper ID 41)**

Cheng Chi, Xuguang Sun, Ning Xue, Tong Li,
Chang Liu

Chinese Academy of Sciences, China

18.00 - 20.30

Banquet, Poolside, Level 5

5th January 2018 (Friday)

Meeting Room DO1@M, Mezzanine Floor
Theme: Sensors/Actuators-2

Session Chair	Kai Tao
FA1-1 9.00 - 9.25 Invited	Water Hardness Determination Using Disposable MEMS-Based Electrochemical Sensor (Paper ID 18) Nan Wang ¹ , Elgar Kanhere ² , Kao Tao ³ , Jin Wu ⁴ , Jianmin Miao ² , Michael Triantafyllou ⁵ ¹ Singapore-MIT Alliance for Research and Technology Centre, Singapore, ² Nanyang Technological University, Singapore, ³ Northwestern Polytechnical University, China, ⁴ Sun Yat-Sen University, China, ⁵ Massachusetts Institute of Technology
FA1-2 9.25 - 9.50 Invited	Ultra-High Sensitive Photo/X-ray Detectors Using N-Doped Diamond and a-Se (Paper ID 67) Joshua D. John ¹ , Ichitaro Saito ¹ , Tomoaki Masuzawa ² , Daniel Chua ³ , Takatoshi Yamada ⁴ , Ken Okano ¹ ¹ International Christian University, Japan, ² Shizuoka University, Japan, ³ National University of Singapore, Singapore, ⁴ National Institute of Advanced Industrial Science and Technology, Japan
FA1-3 9.50 - 10.10	Detection of Attention and Meditation State-Based Brainwave System to Control Prosthetic Arm (Paper ID 54) Hanim Hussin Universiti Teknologi, MARA, Malaysia
FA1-4 10.10 - 10.30	Design and Modeling of Memristive Carbon Dioxide Sensor (Paper ID 13)

Keerthana S, Rathnakannan K
Anna University, India

- FA1-5**
10.30 - 10.50
Design of Testable Odd Parity (TOP) and Testable Even Parity (TEP) Logic Using Conservative Quantum Dot Cellular Automata (CQCA) (Paper ID 65)
Mukesh Patidar, Namit Gupta
Shri Vaishnav Vidyapeeth Vishwavidyalaya, India
- 10.50 - 11.30**
Morning Tea Break and Social Session

Meeting Room BE@M, Mezzanine Floor
Theme: MEMS/NEMS-3

- | | |
|----------------------|---------------|
| Session Chair | Jin Wu |
|----------------------|---------------|
- FA2-1**
9.00 - 9.25
Invited
The Fabrication Method of High Height-to-Diameter Ratio Micro-Wineglass Resonators (Paper ID 26)
Jianbing Xie, Sen Ren, Qiang Shen, Lei Chen, Hui Xie, Weizheng Yuan
Northwestern Polytechnical University, China
- FA2-2**
9.25 - 9.45
Inplane Rotational Tuning of Polymer Diffraction Grating for Diverse Imaging Spectroscopy (Paper ID 20)
Sanathanan Muttikulangara¹, Maciej Baranski¹, Shakil Rehman², Liangxing Hu¹, Jianmin Miao¹
¹Nanyang Technological University, Singapore,
²Singapore-MIT Alliance for Research and Technology, Singapore
- FA2-3**
9.45 - 10.05
Trade-off Modelling Analysis between Sensitivity and Q Factor of MEMS Pressure Sensor for Bladder Implants (Paper ID 42)
Norliana Yusof¹, Norhayati Soin²
¹Universiti Kebangsaan Malaysia, Malaysia,
²Universiti of Malaya, Malaysia

10.50 - 11.30 Morning Tea Break and Social Session

13.00 - 17.00 Social Event

End of Conference Program

Poster Schedule

Poster Session

FOYER@M, Mezzanine Floor

- P-1** **Design and Fabrication of a Longitudinal-Bending Hybrid Ultrasonic Vibrator for Ultrafine Wire Drawing (Paper ID 6)**
YuanCai Yang, XiaoBiao Shan, Shen Liu, Xie Tao
Harbin Institute of Technology, China
- P-2** **Design and Microfabrication of V-Shaped Microstrip Meander Line Slow Wave Structure (Paper ID 7)**
Xin Xia, Shaomeng Wang, Zishan Ali Syed Mohammed, Sheel Aditya, Jianmin Miao
Nanyang Technological University, Singapore
- P-3** **Cylindrical-Piezoelectric Generator for Energy Harvesting in Fluid Environment (Paper ID 8)**
Ying Gong, Xie Tao, Xiaobiao Shan
Harbin Institute of Technology, China
- P-4** **A Novel Generator to Capture Fluid Vibration Underwater (Paper ID 9)**
Ying Gong, Hongliang Li, Tao Xie
Harbin Institute of Technology
- P-5** **High-Accuracy Parallel Two-stage Estimator under Generalized Bias Driven by Unknown Input for MEMS Sensor (Paper ID 27)**
Jie Zhou, Yan Liang, Kai Tao, Qiang Shen, Quan Pan
Northwestern Polytechnical University, China
- P-6** **Seebeck Coefficient of Synthesized Titanium Dioxide Thin Film on FTO Glass**

Substrate (Paper ID 30)

Rohaida Usop¹, Noor Kamalia Abd Hamed¹,
Megat Muhammad Ikhsan Megat Hasnan¹,
Hiroya Ikeda², Mohd Faizul Mohd Sabri¹,
Suhana Mohd Said¹, Mohd Faiz Mohd Salleh¹
¹University of Malaya, Malaysia, ²Shizuoka
University, Japan

- P-7** **Effect of Fluorine Circumference of Zinc-Hexadecafluorophthalocyanine towards VOCs Determination by Using Low-Cost Optical Electronic Nose (Paper ID 35)**
Treenet Thepudom
Mahidol University, Thailand
- P-8** **Development of IoT Indirect BOD Monitoring System Based on Electronic Nose Technology (Paper ID 45)**
Satetha Siyang, Rotthaporn Palasuek,
Teerakiat Kerdcharoen
Mahidol University, Thailand
- P-9** **Analytical Capacitance Model for In-Ga-Zn-O Thin-Film Transistors Including Degeneration (Paper ID 49)**
Feng Zhuang, Jieli Fang, Wanling Deng
Jinan University, China
- P-10** **Optimized Polyvinylidene Fluoride Nanofiber Webs for Flexible Energy Harvesters (Paper ID 64)**
Debarun Sengupta¹, Ajay Giri Prakash
Kottapalli², Chee Yee Kwok¹, Jianmin Miao³
¹University of New South Wales, Australia,
²Singapore-MIT Alliance for Research and
Technology, Singapore, ³Nanyang
Technological University, Singapore
- P-11** **Mechanical Deflection of Suspended Graphene in the Thermal Casimir Regime (Paper ID 68)**
Chee Quen Hooi

Nanyang Technological University, Singapore

P-12

**Microfluidic Biofuel Cells in Perspective
(Paper ID 1)**

Yang Yang, Honglong Chang

Northwestern Polytechnical University, China

P-13

**Simulation Analysis of Oxygen Plasma
Treatment Effect on LSPR Response of
Aluminum Nanodisk (Paper ID 60)**

Bei Liu¹, Jie Li², Xu Shi², Min-Hsiung Shih³,
Kosei Ueno², Koji Hatanaka³, Hiroaki Misawa²,
Kou-Chen Liu¹

¹Chang Gung University, Taiwan, ²Hokkaido
University, Japan, ³Academia Sinica, Taiwan

Notes